

# NEOTYPIFICATION OF *HECHTIA PODANTHA* (BROMELIACEAE)

Adolfo Espejo-Serna<sup>1</sup>, Nancy Martínez-Correa, and Ana Rosa López-Ferrari

Herbario Metropolitano UAMIZ  
Departamento de Biología  
División de Ciencias Biológicas y de la Salud  
Universidad Autónoma Metropolitana  
Unidad Iztapalapa. Apdo. Postal 55-535  
09340 MÉXICO, D.F.  
<sup>1</sup>aes@xanum.uam.mx

## ABSTRACT

The name *Hechtia podantha* has been frequently misapplied and possesses typification problems, therefore the name is neotypified and its nomenclatural status is discussed. A complete and updated description of *H. podantha* is presented.

## RESUMEN

El nombre de *Hechtia podantha* ha sido con frecuencia mal aplicado debido a que presenta problemas de tipificación, por tal motivo se propone su neotipificación y se aclara su estatus nomenclatural. Se presenta una descripción completa y actualizada de *H. podantha*.

In his contribution to the Bromeliaceae for the *Monographiae Phanerogamarum* of C. de Candolle, Mez (1896) proposed seven new species of *Hechtia* using mainly material from Mexico.

In the aforementioned work, Mez described *Hechtia podantha* citing a single collection of material grown in the Schönbrunn garden, which was collected and deposited in the herbarium of the Department of Botany of the Naturhistorisches Museum Wien in Vienna (W) and was cited in the protologue as follows: "Patria absque dubio Mexico. (Descript. ex specimine sicco hort. Schoenbrunn., in herb. Vindob. conserv.)." In 1935, in his contribution to the work of Engler, *Das Pflanzenreich*, Mez mentioned that the living material had disappeared from the Schönbrunn garden: *A War früher im Schönbrunner Garten in Kultur, ist aber nicht mehr vorhanden*. However, he added to the examined material, one specimen from Tehuacán, Puebla (Liebmann s.n., Dec 1841) and two other collections from Pachuca, Hidalgo (Pringle 6932, Aug 1898, and Pringle 11188, Aug 1902). Moreover, the original specimen at W was apparently destroyed during World War II, or at least it is not actually found in the collections (W. Till, pers. comm.) (cf. also Merrill 1943, p. 490). Therefore, the type material of *Hechtia podantha* is missing. There is a photograph of the type deposited at the Field Museum (negative 29960, F), in which original label appears with the following text: HRB. MUSEI PALAT. VINDOB. / N°. / *Hechtia* / C[ulta]. h[orto]. V[indobonensis]. [1]852. However, there are no known duplicates of the original collection at the herbarium and the living material cultivated in Vienna has also been lost.

Currently, the interpretation of this species is based on the original description and in the circumscription made by Mez in Engler *Das Pflanzenreich* (1935) and by Smith and Downs (1974) in their treatment of the genus for *Flora Neotropica*.

During a taxonomic revision of the *Hechtia podantha* complex (Martínez-Correa 2008), we found that this name was applied to different plant populations with similar morphological characteristics. The inappropriate application of the *podantha* epithet has been the result, at least in part, from the lack of type material that allows the questionable identification of the species, coupled with the lack of suitable specimens.

For the above cited reasons, we believe it is important to review the nomenclatural status of this species and designate a neotype to provide the correct application of the name. Of all the material reviewed by us, we selected specimens collected by C.G. Pringle (6932) in the state of Hidalgo and deposited in several herbaria, whose features match those described for *Hechtia podantha* in the protologue, and also with the photograph of the original material deposited at F (negative 29960).

We reproduce here the original description of *Hechtia podantha* and provide an updated and detailed description of the species.

**Hechtia podantha** Mez, in C. DC., Monogr. Phan. 9:549–550. 1896. TYPE: MEXICO. HIDALGO: municipality of Pachuca de Soto, limestone hills near Pachuca, 8000 ft, 2 Aug 1898, C.G. Pringle 6932 (NEOTYPE, designated here: ENCB!; DUPLICATES OF THE NEOTYPE: B 10 0202857!, BR!, CHAPA!, GH!, LY!, MEXU 8673!, MEXU 154994!, MICH!, PI!, UC 117173!, US 334784!, US 934713!, US 958296!, WU 292!, Z 53966! and Z 53987!).

Inflorescentia tripinnatim dense panniculata; ramulis usque ad 60 mm longis, flores cylindricè gerentibus; bracteolis pedicellos usque ad 5 mm longos subaequantibus v. (superioribus) iis brevioribus; sepalis obtusiusculis, glabris; petalis in flore ♂ basi minute cohaerentibus apice late rotundatis; ovario glabro.

Folia ad 0,4 m. longa, supra glabrata, subtus peradpresse minutissime lepidota albida, spinis ad 6 mm longis horrida. Scapus validissimus, ad vaginas albo-floccosus ceterum glabratus. Inflorescentia ∞-flora, ± 0,8 m longa, thyrsoides; axibus lepidoto-tomentellis glabrescentibus; bracteolis florigeris subulato-lanceolatis, perlonge acutis, ad 4 mm longis. Flores ♀ solum cogniti ex sicco virentes usque ad 5 mm longi; sepalis 4 mm. metientibus, latissime ovatis. Petala elliptica, quam maxime concava. Ovarii in flore × subpulvinatim reducti stigmata sessilia.

**Terrestrial herbs**, rosetophilous, flowering ca. 1.5 m high. **Stems** short, inconspicuous. **Leaves** numerous, fleshy; sheaths light yellow to brown, ovate to suborbicular, glabrous at the adaxial surface, glabrous at the base and sparsely lepidote at the apex on the abaxial surface, 2.1–8.8 cm long, 2.3–6.1 cm wide, serrate; blades green, erect, narrowly triangular, sparsely lepidote on both surfaces, 19–47.7 cm long, 0.5–1.5 cm wide, pungent, margin spinose; spines curved and ascendent, 3.1–7(–8) mm long, separate by 0.64–3.2 cm. **Inflorescence** terminal, erect, three times branched. **Staminate inflorescence** 44–116.5 cm high, with to 46 primary branches, rachis glabrous, straight, cylindrical; inflorescence internodes 1.2–3.4 cm long; **peduncle** erect, glabrous, cylindrical, 18.3–40 cm long, 0.46–1.1(–1.5) cm diameter, peduncle internodes 0.8–3.1 cm long; inferior **peduncle bracts** foliaceous, sparsely lepidote, serrate, 6.3–17.8 cm long, the upper ones vaginiform, sparsely lepidote, entire; **primary bracts** widely ovate, glabrous, serrulate, 2.2–4.8 cm long; **primary branches** ascendent, cylindrical, one per node, 1.6–6.6 cm long; **secondary branches** ascendent, 1.35–5.25 cm long; **flowers** actinomorphic, numerous per branch, laxely disposed, 3.5–5.8 mm long; **pedicels** 1.4–2.7 mm long; **floral bracts** brown, linear to triangular, glabrous, entire, 1.2–3.1 mm long, 0.2–1 mm wide at the base, 0.1–0.5 mm wide at the middle portion, acute; **sepals** brown, triangular to ovate, glabrous, entire, 1.7–4.3 mm long, 1–2.1 mm wide at the base, 0.7–1.4 mm wide at the middle portion, acute; **petals** green, elliptic to ovate, glabrous, entire, 2.5–5.4 mm long, 1.4–2.8 mm wide at the base, 1.5–3 mm wide at the middle portion, rounded and brown at the apex; **stamen** equal, longer than petals, filaments 1.3–4.2 mm long, triangular, anthers yellow, oblong, 0.7–2 mm long; **ovary** vestigial. **Pistillate inflorescence** 35–127 cm high, with to 47 primary branches, rachis glabrous, straight, cylindrical, inflorescence internodes 1.2–4.5 cm long; **peduncle** erect, glabrous, cylindrical, 23–68 cm long, 0.73–1.8 cm diameter; peduncle internodes 1.3–4.4 cm long; inferior **peduncle bracts** foliaceous, sparsely lepidote, serrate, 3.8–15.5 cm long, the upper ones vaginiform, sparsely lepidote, entire; **primary bracts** ovate-triangular, sparsely lepidote, serrate, 2.4–6 cm long; **primary branches** ascendent, one per node, 2.5–9 cm long; **secondary branches** ascendent, 1.41–5.31 cm long; **flowers** actinomorphic, numerous per branch, laxely disposed, 3.6–6.4(–7) mm long; **pedicels** 1.6–5.1 mm long; **floral bracts** brown, triangular, entire, glabrous, 1.1–5.3 mm long, 0.1–0.6 mm wide at the base, 0.1–0.4 mm wide at the middle portion, acute; **sepals** brown, triangular to ovate, glabrous, entire, 1.5–4 mm long, 0.7–2.2 mm wide at the base, 0.3–1 mm wide at the middle portion, acute; **petals** green, triangular, glabrous, entire, 1.9–4.7 mm long, 1.4–2.7 mm wide at the base, 0.5–1.6 mm wide at the middle portion, acute; **staminodes** 6, complanate, triangular, anthers absent; **ovary** ovoid, 3.8–7 mm long, 1.2–2.4 mm diameter; **capsule** ovoid, parda, de 0.71–1.2 cm de largo, de 4.1–6.5 mm de diámetro; **seeds** 2–6.8 mm long, with a circumferential wing.

Specimens examined: **MEXICO. Aguascalientes:** Calvillo, 1950 m, 11 Aug 1982, de la Cerda & García 1482 (CIIDIR, IEB); road to Calvillo, W of Aguascalientes, near km 40, 1850 m, 25 Aug 1960, McVaugh 18308 (MICH, US); 9 km al NE de Calvillo, sobre la carretera a Aguascalientes, 1800 m, 22 Aug 1976, Rzedowski & McVaugh 1251 (MICH); 1252 (ENCB, MICH); San José de Gracia, ca. 1 km al S de San José de Gracia, 2000 m, 4 Aug 1996, López-Ferrari et al. 2245 (UAMIZ); 2246 (UAMIZ). **Guanajuato:** San Luis de la Paz, cerro Santa

Cruz, 8 km al oeste de San Luis de la Paz, 1900 m, 20 Jul 1989, *Ventura & López 6893* (IEB, MEXU, XAL, UAMIZ). **Hidalgo:** Ajacuba, cerro del Tezontle, Sierra del Mexe, ejido Santiago Tezontle, 2180 m, 30 May 1989, *Díaz & Díaz 456* (FCME, MEXU); Huasca de Ocampo, camino a Piedra Larga (Piedra del Aire), enfrente a Santa Cruz, 1780 m, 12 Nov 2000, *Guízar et al. 5416* (CHAP, MEXU); Huichapan, Huichapan, 19 Jun 1912, *Salazar s.n.* (MEXU); Ixmiquilpan, La Aduana, 10 km después de Ixmiquilpan, rumbo a Zimapán, 1770 m, 28 Aug 2006, *Martínez-Correa et al. 110* (UAMIZ); La Aduana, 1750 m, 10 Nov 1986, *Velasco & Ojeda 174* (CHAP, MEXU); Metepec, Metepec, 17 Jun 1904, *Pringle 13482* (US, VT); Metztitlán, barranca de Metztitlán, paraje La Casita, carretera Pachuca – Tampico, 1100 m, 9 Nov 2000, *Guízar et al. 5291* (CHAP, MEXU); Mineral del Monte, 4 km al N de Pachuca, 2250 m, 4 Aug 1963, *Chávez s.n.* (ENCB); Mineral de la Reforma, alrededores de Pachuca, 2470 m, 28 Aug 2006, *Martínez-Correa et al. 101* (UAMIZ); *102* (UAMIZ); Pachuca de Soto, 3 km al SW de Pachuca, 2550 m, 25 May 1977, *García 2030* (CHAPA, ENCB, IEB, MEXU, XAL); camino de Mineral del Monte a Pachuca, 2640 m, 28 Aug 2006, *Martínez-Correa et al. 104* (UAMIZ); *106* (UAMIZ); *107* (UAMIZ); Cerro Ventoso above Pachuca, 8500 ft, 25 Aug 1902, *Pringle 11188* (B, K, LY, US, Z); between Pachuca and Real del Monte, 31 Aug 1903, *Rose & Painter 6758* (US); 3 km al NE de Pachuca, sobre el camino a Real del Monte, 2550 m, 21 Jun 1963, *Rzedowski 16727* (ENCB, MICH); Tasquillo, Noxthey, 1850 m, May 1981, *Asteiza 316B* (CHAP); ca. 5 km al S de Tasquillo, 10 Jan 1965, *González-Quintero 1984* (ENCB, US); ca. 4 km después de La Aduana, rumbo a Zimapán, en la entrada a Rinconada, 1860 m, 28 Aug 2006, *Martínez-Correa et al. 111* (UAMIZ); *112* (UAMIZ); District Zimapán, by highway near Tasquillo, 12 Aug 1948, *Moore Jr. & Wood Jr. 4508* (AA, MICH, US); *4509* (MICH); Tecozautla, Manguany, 6 km al norte de Tecozautla, 1800 m, 12 Jul 1980, *Hernández-Magaña & Hernández 4696* (MEXU); Tolcayuca, a 2.5 km al SW de Tolcayuca, 2500 m, 7 May 1978, *Equihua 20* (ENCB); Epazoyucan, 2 km al N de La Trinidad, 2500 m, 1 Jun 1973, *Rzedowski 30711* (ENCB, MEXU, MICH); *30712* (ENCB); Zimapán, 2.4 km al W de Las Trancas, rumbo a Zimapán, 1950 m, 20 Jul 1994, *Espejo et al. 5147* (CICY, IEB, UAMIZ); 6 km después de El Saucillo, rumbo a la hidroeléctrica Zimapán, 1970 m, 29 Aug 2006, *Espejo et al. 6889* (UAMIZ); *6890* (UAMIZ). **Querétaro:** Cadereyta de Montes, 6 km después de Mesa de León, rumbo a Cadereyta, 1940 m, 29 Aug 2006, *Espejo et al. 6894* (UAMIZ); 10 km después de Vizarrón, rumbo a Pinal de Amoles, 1700 m, 29 Aug 2006, *Espejo et al. 6895* (UAMIZ); ca. 15 después de Vizarrón, rumbo a Peña Blanca, 1500 m, 9 Apr 2007, *López-Ferrari et al. 3249* (UAMIZ); *3250* (UAMIZ); ca. 21 después de Vizarrón, rumbo a Peña Blanca, 1370 m, 9 Apr 2007, *López-Ferrari et al. 3252* (UAMIZ); ca. 18 después de Vizarrón, rumbo a Peña Blanca, 1450 m, 9 Apr 2007, *López-Ferrari et al. 3253* (UAMIZ); La Palma, NE de Mesa de León, en la ceja del río Moctezuma, 1800 m, 1 Aug 1998, *Pérez et al. 3867* (IEB, UAMIZ); Ezequiel Montes, 4 km al E de Las Rosas, 1850 m, 19 Jul 1989, *Zamudio 7393* (IEB); *7397* (IEB); Peñamiller, 5 km después del puente Chorreadero, carretera Vizarrón - Pinal de Amoles, 1360 m, 29 Aug 2006, *Espejo et al. 6897* (UAMIZ); 6 km al S de Peña Blanca, 1450 m, 14 Jul 1979, *Zamudio 3680* (IEB, MEXU); Querétaro, La cañada, ladera norte, 15 Mar 2002, *Cabrera 102* (IEB); San Juan del Río, Cerro Gordo, 8 km al SW de la cabecera municipal de San Juan del Río, 26 Jun 1987, *Rodríguez & Osorno 13* (CHAPA, CIIDIR, IEB). **Nova Hispana:** Sin localidad precisa, (1787–1795–1804), *Sessé et al. 4667* (MA); C[ulta]. h[orto]. V[indobonensis]. [1]852. cult. Schönbrunn (foto F! ).

## ACKNOWLEDGMENTS

We would like to thank Fernando Chiang and Walter Till for their critical revision of the manuscript. The comments one anonymous reviewer are appreciated. Also to the curators and staff of the following herbaria for providing access to their collections: B, BM, CHAP, CHAPA, CICY, ENCB, F, GH, IEB, K, LY, MEXU, MA, MICH, P, UAMIZ, UC, US, VT, W, WIS, WU, XAL, and Z. Some results of this work were derived from the Graduate Project of the second author. We thank CONACyT for the grant 202259 in support of this work. Also, we would like to thank Dra. Alma Orozco Segovia responsible of the project “Mecanismos fisiológicos inducidos por el priming natural, relacionados con la tolerancia de algunas especies de plantas a diferentes habitats” for the grant to N. Martínez-Correa (11253).

## REFERENCES

- MARTÍNEZ-CORREA, N. 2008. Sistemática del complejo de especies de *Hechtia podantha* Mez (Pitcairnioideae, Bromeliaceae). Dissertation, Universidad Autónoma Metropolitana, Iztapalapa.
- MERRILL, E. D. 1943. Destruction of the Berlin Herbarium. *Science* 98(2553):490–491.
- MEZ, C. 1896. Bromeliaceae. In: C. DC. *Monographie Phanerogamarum* 9:549–550.
- MEZ, C. 1935. Bromeliaceae. In: Engler, A. *Pflanzenreich* IV.32 (Heft 100, 3):321–480.
- SMITH, L.B. AND R.J. DOWNS. 1974. Pitcairnioideae (Bromeliaceae). *Flora Neotropica Monograph* 14(1):1–658. Hafner Press, New York.